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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,796	03/03/2004	Toshiki Sugawara	S20.43590X00	4358
20457	7590	06/01/2006	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873			CONNOLLY, PATRICK J	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/790,796	SUGAWARA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Patrick J. Connolly	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 20 July 2004.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-14 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-11 and 14 is/are rejected.  
 7) Claim(s) 12 and 13 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 03 March 2004 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>03.03.04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

**Figures 2 and 3** should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 4 and 7** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**As to claim 4**, it is unclear what relationship between the reflecting films the Applicant intends to establish by the limitations. A "first reflecting film" and a "second reflecting film" are recited, with the second film having a reflection factor being larger than "a said reflecting film". It is unclear what this is intended to mean.

With further regard to **claim 4**, it is unclear what the direction of diffraction is intended by the limitation "on side of said parallel interference plate".

Art Unit: 2877

**As to claim 7,** it is unclear what the limitation "in a range of  $10^{-7} /^{\circ}\text{C}$ " is supposed to mean. This appears to be a temperature, not a coefficient of expansion, and further it is not a range, as it has only one number.

**Claims 4 and 7 have been rejected below as best understood by the examiner.**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-5, 8, 9 and 11** are rejected under 35 U.S.C. 102(b) as being clearly anticipated by U.S. Patent No. 5,973,838 to Shirasaki (hereafter Shirasaki).

**As to claim 1,** Shirasaki teaches a spectroscopic device including (see Figures 6 and 18 below):

FIG. 6

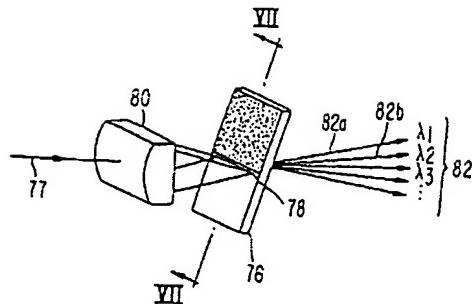
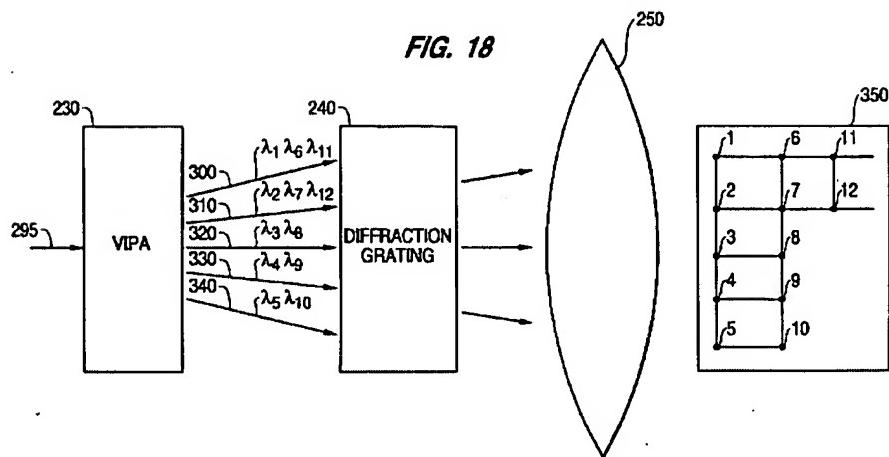


FIG. 18



a parallel interference spectrometer having a chromatic dispersion characteristic (Figure 6 corresponding to VIPA 230 in Figure 18);

a dispersive device having chromatic dispersion characteristic smaller than that of said spectrometer (Figure 18, diffraction grating 240, see also bottom of column 15, lines 62-67 and column 16, lines 1-11);

wherein the spectrometer and the dispersive device are arranged at a predetermined distance from each other (see Figure 18 above, the elements are static and thereby at a predetermined distance);

and wherein the spectrometer and the dispersive device arranged in such a manner that the directions of chromatic dispersion of each may be different (see for example, column 16, lines 47-54).

**As to claim 2,** Shirasaki discloses a focusing lens (Figure 6, 80) and a parallel interference plate (76) coated with a first reflecting film having a boundary with light input plane on one surface of a transparent substrate, on the other surface of the transparent substrate, second reflecting film having reflection factor being smaller than that of said reflecting film is formed, and said dispersive device is arranged so as to diffract light passed through said second reflecting film (see Figure 6 above, Figure 7, column 5, lines 50-67 and column 6 lines 1-39).

**As to claims 3 and 5,** Shirasaki discloses the reflection factor of the light input plane of the interference plate as under 10% (specifically 5%, see column 6, lines 5-24), reflection factor of said first reflecting film (88) is no less than 90% (specifically 100%, see column 6, lines 5-24), and reflection factor of said second reflecting film (86) is no less than 80% (specifically 100%, see column 6, lines 5-24).

**As to claim 4,** Shirasaki discloses said parallel interference spectrometer has a focusing lens part and a parallel interference plate, said parallel interference plate has, on one surface of transparent substrate, an input plane to which light from said focus lens part is inputted, and first reflecting film having a boundary with said input plane, on the other surface, second reflecting film having reflection factor being larger than that of a said reflecting film, said dispersive device is arranged so as to diffract light passed through said first reflecting film and so as to output diffracted light on a side of said parallel interference plate (see Figure 6, 18, analysis with respect to claims 1-3 above).

**As to claim 8,** Shirasaki discloses a diffraction grating (see Figure 18 above).

**As to claims 9 and 11,** Shirasaki discloses a two-dimensional array of fibers, each corresponding to a receiver, typically a photodiode (see Figure 14, element 162, see also column 12, lines 52-61).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 7, 10 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirasaki as applied to claims 1-5, 8, 9 and 11 above, and further in view of admitted Prior Art of Figure 4.

**As to claim 6,** Shirasaki teaches a diffraction grating as a dispersive device.

Shirasaki is silent on whether the diffraction grating of Figure 18 is reflective or transmissive. It is assumed that it could be either, based on the disclosed Prior Art of Figure 4.

Figure 4 teaches a reflective diffraction grating as dispersive device (see Figure 4, see also bottom of column 2 and column 3, lines 1-15).

Shirasaki is silent with respect to the size of the diffraction grating.

Shirasaki teaches an example of the dispersion (at the top of column 16) of 20 wavelengths spaced 0.8 nm apart. From this it is assumed that the scale of the grating would be well under 3x3 centimeters and probably more on the order of 1x1 centimeters. Further,

Art Unit: 2877

Shirasaki teaches this device for use in a fiber optics communication system as a wavelength splitter. The Examiner takes Official Notice of the fact that it is well known in the interferometry and communications art to use diffraction gratings for demultiplexing having areas well under 9 cm<sup>2</sup>, so as to provide compact and efficient receiving devices.

It would have been obvious to one of ordinary skill in the art at the time of invention to use a diffraction grating with an area under 9 cm<sup>2</sup> in combination with the apparatus of Shirasaki for the reasons set forth above.

**As to claim 7**, Shirasaki is silent with respect to the coefficient of thermal expansion.

The Examiner takes Official Notice of the fact that it is well known to use optical elements with low coefficients of thermal expansion in combination with interferometric devices so as to provide stable, reliable and accurate optical measurements.

It would have been obvious to one of ordinary skill in the art at the time of invention to use a substrate with a low coefficient of thermal expansion for the reasons as set forth above.

**As to claim 10**, Shirasaki teaches a two-dimensional receiver array (see analysis with respect to **claim 9** above).

With further regard to **claim 10**, Shirasaki teaches a detected relationship between intensity and wavelength (see column 7, lines 30-40, OUT's 1-n correspond to dispersed wavelengths as illustrated in Figure 8).

Shirasaki is silent with respect to signal processing or displaying this information.

Art Unit: 2877

The Examiner takes Official Notice of the fact that signal processing and display means are well known in the art for use in illustrating spectrometric data relationships for data analysis purposes.

It would have been obvious to one of ordinary skill in the art at the time of invention to use signal processing and display means in order to display the detected light intensities and the relationship to their respective wavelengths so as to achieve the analysis advantage as described above.

**As to claim 14;** although Shirasaki is silent with respect to the infrared and near-infrared bands specifically, Shirasaki teaches that the input light to the spectrometer may fall within a "relatively wide wavelength range" (see column 15, lines 7-11).

The Examiner takes Official Notice of the fact that it is well known in the art to use spectrometric and spectroscopic devices in the infrared and near infrared wavelength regions of the spectrum and to use components that correspond to that region so as to provide accurate detection of phenomena that respond best to that wavelength band, such as heat and temperature measurement. Other well-known uses for the infrared wavelength band are found in communications devices (including interferometric and dispersive devices) for short-range communication applications.

It would have been obvious to one of ordinary skill in the art at the time of invention to include the infrared and near infrared within the "wide wavelength" range of the components and detections of Shirasaki, so as to provide the above advantages with respect to measurable phenomena and communications.

***Allowable Subject Matter***

**Claims 12 and 13** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

**As to claim 12,** the prior art of record, taken alone or in combination, fails to disclose or render obvious an optical measurement device including: a photoelectric conversion part forming a light detection part having a fixing part made from transparent material integrated in side of the first reflecting film of the transparent substrate and between said parallel interference plate and the dispersive device, in combination with the rest of the limitations of claim 12.

**As to claim 13,** the prior art of record, taken alone or in combination, fails to disclose or render obvious an optical measurement device including: means for detecting a temperature of a distortion of the transparent substrate, and a signal processing part having means for proofreading the displayed information of the optical two dimensional distribution of the information of the temperature or distortion, in combination with the rest of the limitations of claim 13.

"Several facts have been relied upon from the personal knowledge of the examiner about which the examiner took Official Notice. Applicant must seasonably challenge well known statements and statements based on personal knowledge when they are made by the Board of Patent Appeals and Interferences. In re Selmi, 156 F.2d 96, 70 USPQ 197 (CCPA 1946); In re Fischer, 125 F.2d 725, 52 USPQ 473 (CCPA 1942). See also In re Boon, 439 F.2d 724, 169 USPQ 231 (CCPA 1971) (a challenge to the taking of judicial notice must contain adequate information or argument to create on its face a reasonable doubt regarding the circumstances justifying the judicial notice). If applicant does not seasonably traverse the well-known statement during examination, then the object of the well known statement is taken to be admitted prior art. In re Chevenard, 139 F.2d 71, 60 USPQ 239 (CCPA 1943). A seasonable challenge constitutes a demand for evidence made as soon as practicable during prosecution. Thus, applicant is charged with rebutting the well-known statement in the next reply after the Office action in which the well known statement was made."

Art Unit: 2877

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J. Connolly whose telephone number is 571.272.2412. The examiner can normally be reached on 9:00 am - 7:00 pm Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on 571.272.2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Patrick Connolly*  
pjc  
05.19.2006